

Interrogatory CSC-1

The United Illuminating Company
Docket No. CSC F-2010

Witness: Patrick McDonnell
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Q-CSC-1: What types of energy efficiency devices are installed as part of The United Illuminating Company's (UI) conservation and load management program?

A-CSC-1: The United Illuminating Company designs, implements and administers energy efficiency programs funded through the Connecticut Energy Efficiency Fund (CEEF), Regional Greenhouse Gas Initiative (RGGI) and Forward Capacity Market (FCM). These programs target residential, commercial and industrial customers and help save money, energy and protect the environment.

Energy efficient fluorescent lighting currently comprises a significant portion of our residential and Commercial and Industrial program savings. UI anticipates that LED lighting will play a larger role as the technology continues to progress in the future.

Residential HVAC and building envelope measures include efficient air conditioners, heat pumps, ducting/envelope sealing and insulation upgrades.

Commercial and Industrial HVAC measures include high efficient chillers, variable speed drives and controls. UI also has several installations of Ice Storage systems in its service territory.

Operations and maintenance, retro-commissioning, behavioral change and sustainability initiatives will be expanded and will have increased program impacts in future years

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Q-CSC-2: Describe any new and/or innovative conservation and load management energy savings measures that UI has recently put into use or is considering.

A-CSC-2: The Conservation and Load Management programs that UI offers are the result of a collaborative effort between UI, CL&P and the various members of the Energy Conservation Management Board. As a result of that collaboration, the programs are continually evolving and providing the latest in energy efficiency offerings to UI's customers.

UI has fully integrated gas savings measures, funded by the gas distribution companies, into the programs. This allows our customers to maximize their savings opportunities through one comprehensive program.

LED lighting technology continues to improve and become less expensive. A greater variety of lamp/fixture types are also available in the market. UI will continue to monitor the development/availability of this technology and will increase LED lighting rebate offerings over the next few years.

Ductless Heat Pump technology has continued to improve, and is now an excellent retrofit tool for electrically heated homes.

Recent improvements in Heat Pump Water Heaters have resulted in the addition of a rebate for these products.

For Commercial and Industrial customers, UI is expanding its operations and maintenance, retro-commissioning, behavioral change and sustainability initiatives. UI is also becoming more focused on comprehensive projects which go after all energy end uses and fuel types.

Interrogatory CSC-3

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Q-CSC-3: Is UI's load response program separate from ISO New England's load program? Explain.

A-CSC-3: No. The ISO New England Load Response Program has now been folded into the new ISO Forward Capacity Market (FCM). UI, and all other demand response providers, recruits customers to curtail load when called upon and then bids that reduction into the forward capacity market auction. The capacity revenue is used to make incentive payments to customers to participate.

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Q-CSC-4: Provide any assumptions associated with UI's forecast of distributed generation.

A-CSC-4: Existing distributed generation (DG) units that were on-line are included in the historical data set used to develop UI's peak load forecast. This effectively reduces the UI energy and peak demand forecasts. The Company begins the forecast of DG units by including only the new annual incremental increases from DG units in the Company's service territory that have received DPUC approval for grants under Public Act 05-01, June Special Session, *An Act Concerning Energy Independence* ("PA 05-01"). The Company's sales forecast then excludes those units no longer anticipated and reflects an 85% capacity factor for the remaining forecasted units. Table 1 below reflects the incremental impact of DG to the sales forecast for the time period 2010 - 2019.

Table 1 – Incremental Annual Impact of DG to Sales Forecast

Year	Reduction in Energy Sales due to DG (GWhrs)
2010	79
2011	67
2012	102
2013	20
2014	-
2015	-
2016	-
2017	-
2018	-
2019	-

For the weather adjusted system peaks presented in Exhibit 1 of UI's Load Forecast and Transmission Planning filed March 1, 2010 (the "Company Report"), all operational units (actual generator output) have been included as offsets to peak load for the historic normal and extreme weather scenarios. Only half of the units that have received grant approval are included as offsets to load in the forecast. The units are then "grossed up" using the system loss factor to account for the impact at the system level. Table 2 presents the incremental

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annual impact (in MW) of DG to the peak load forecast. The values represent DG output at the customer's meter.

For determination of the impact to the system peak, the values were "grossed-up" using the system loss factor.

Table 2 – Incremental Annual Impact of DG to Peak Load Forecast

Year	Reduction in System Peak Load Forecast due to DG (MW)
2010	10.68
2011	6.09
2012	-
2013	-
2014	-
2015	-
2016	-
2017	-
2018	-
2019	-

For the system peaks presented in Exhibit 2 of the Company Report, all forecasted DG units are excluded from the forecast. This is consistent with the ISO-NE, CELT (Capacity, Energy, Loads and Transmission) load forecasting methodology in which demand resources are treated as capacity and not reductions to load.

Interrogatory CSC-5

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Q-CSC-5: Provide a break-down of the projected number of megawatts (MW) of load reduction for The United Illuminating Company's (UI) territory due to conservation and load response/load management for each year from 2010 through 2019. Provide a similar break-down in megawatt-hours or gigawatt-hours if possible.

A-CSC-5: The tables below provide estimated impacts of future Conservation and Load Management programs within UI's service territory.

Estimated UI Conservation Impacts		
Year	MW	mWh
2010	7.4	66,476
2011	6.9	58,798
2012	5.5	45,860
2013	4.8	39,603
2014	4.7	38,617
2015	4.7	38,888
2016	4.8	39,260
2017	4.8	39,327
2018	4.8	39,530
2019	4.8	39,779

UI Load Response Capacity Obligations (MW)				
Resource Type	FCA-1	FCA-2	FCA-3	FCA-4 (Pending)
RTDR	28.652	38.268	22.412	15.555
RTEG	48.470	58.156	39.019	32.667
Total	77.122	96.424	61.431	48.221

Interrogatory CSC-6

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Q-CSC-6: Explain what Smart Grid technology is and how it works. Is this something UI has implemented or is considering?

A-CSC-6: Smart Grid technology enables customers to use electricity with greater choice, seeks to reduce costs and improve efficiencies, and provides the ability to integrate new component systems and sources for safe and reliable operation of the grid.

There are a number of Smart Grid programs and projects in UI's Ten Year Plan Ahead program that are in the planning or implementation phase. Advanced Metering and Customer Systems designed to improve or enable customer interactions with the grid include:

- Procure and Implement a New Meter Data Management System and Business Management Model
- Upgrade SAP Customer Information System and Bill Print Redesign
- Purchase and Deploy Advanced Meters and a Business Intelligence Model
- Procure and Deploy a Home Area Network System and EV Charging Stations

Improvements to the Transmission and Distribution Infrastructure designed to provide operational flexibility and integration while increasing efficiency include:

- Configure Distribution Automation Master Radios
- Install and Configure a Distribution Supervisory Control And Data Acquisition System (SCADA)
- Upgrade the Outage Management System: Implement a Distribution Engineering Data Warehouse
- Open Distribution Substation Bus Ties
- Enhance the Bulk Transmission and Substation Metering System
- Replace Transmission Line Relays
- Install Transmission Phasor Measurement